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TRAIL & LANDSCAPE



*A Publication Concerned With
Natural History and Conservation*

The Ottawa Field-Naturalists' Club

TRAIL & LANDSCAPE

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The Ottawa Field-Naturalists' Club

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Objectives of the Club: To promote the appreciation, preservation and conservation of Canada's natural heritage; to encourage investigation and publish the results of research in all fields of natural history and to diffuse the information on these fields as widely as possible; to support and co-operate with organizations engaged in preserving, maintaining or restoring environments of high quality for living things.

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February, 1992

From the Editor

Bill Gummer

In my new and temporary position as Editor of *Trail & Landscape* I feel great responsibility for helping this Club journal come out on time, for encouraging Club members to contribute to it, and for thanking those who really do all the work to get it in shape. At this time we have received more submissions than would fit in a normal issue and I regret that not every item could be published. Part of this is due to the receipt of a relatively long article on the Leitrim Wetlands, a follow-up on Part 1 that appeared in No. 2 of Vol. 24 in 1990. In view of the current interest in what may happen to these wetlands, it seemed advisable to publish this article now and not later.

I should mention also that we have agreed to bring deadlines back to the first of the month, because of some delays in assembly and then in getting issues out to members. Thus the deadline for material intended for the October-December issue will be August 1, not August 15. ☐

Leitrim Albion Road Wetlands Part 2*

Albert W. Dugal

For over three years I have plodded and snowshoed my way through this remarkable wetland ecosystem (Figure 1), continuously amazed by its rich diversity. Within its boundaries lies a spectrum of moisture-loving plant communities that encompasses a variety of woodlands, several kinds of shrubby thickets, marshes, old fields, a fen and an unusual seepage area embracing both fen and bog affinities. Some of the oldest trees in Ottawa-Carleton have been discovered here--the growth rings of one Larch yielded an age of 250 years. The oldest cedars, enormous, often tilted specimens, are about 200 years old. Views of some trees are given in Figures 3, 5 and 23. The botanically important open fen component contains an assemblage of plants--White Camas (*Zygadenus glaucus*), Marsh Valerian (*Valeriana sitchensis* ssp. *uliginosa*), Arrow Grass (*Triglochin palustris*) (Figure 2) and Sterile Sedge (*Carex sterilis*) (Figure 6) --unknown in Eastern Ontario. The Stoco Fen near Belleville is the closest locale in Southern Ontario harbouring a similar plant association.

The Leitrim Wetlands sustain an assortment of animal life including insects, fishes, amphibians, birds and mammals. Noteworthy among the birds are such provincially significant species as Northern Harrier, Red- Shouldered Hawk and Sedge Wren. Cooper's Hawk and Eastern Bluebird have been sighted in the vicinity of the wetlands and might be observed there in the future as the area provides an ideal habitat. There is also sufficient browse and cover for a deer yard.

Sadly, this regionally and provincially significant Class 1 wetland, one of the crown jewels of our local natural areas, is destined for ultimate destruction by proposed urbanization within its boundaries.

This article updates events since 1990 and reports on additional regionally significant plants found throughout 1990-91. The wetlands are evaluated and relevant topics such as wetland formation, drainage, peat wastage, endangered plant communities, boundaries and Findlay Creek are discussed. The Cumming Cockburn Report, "Planning for Leitrim - An Integrated Approach", is examined with emphasis on its errors, inconsistencies and highly-debatable conclusion that "a functional sustainable wetland and stream ecosystem will persist with the development proposal". Various negative environmental impacts posed by this project and suggested wetland safeguards are outlined.

* See Trail & Landscape Vol. 24, No. 2, 1990 for Part 1.

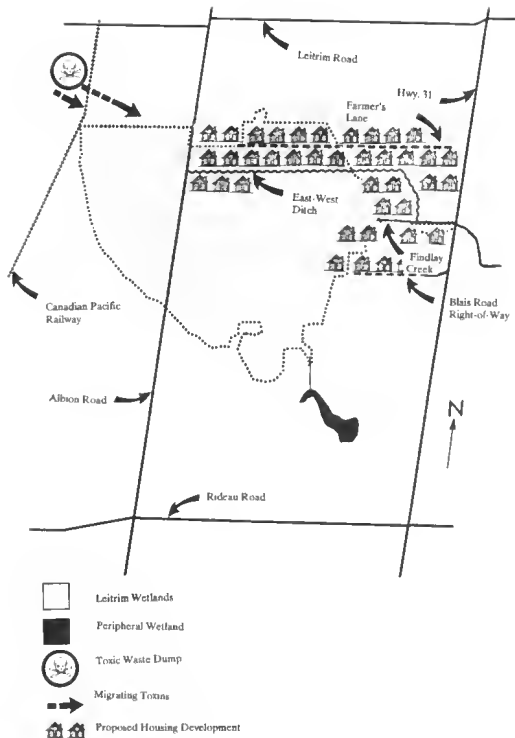


Figure 1. Site Plan of Leitrim (Albion Road) Wetlands

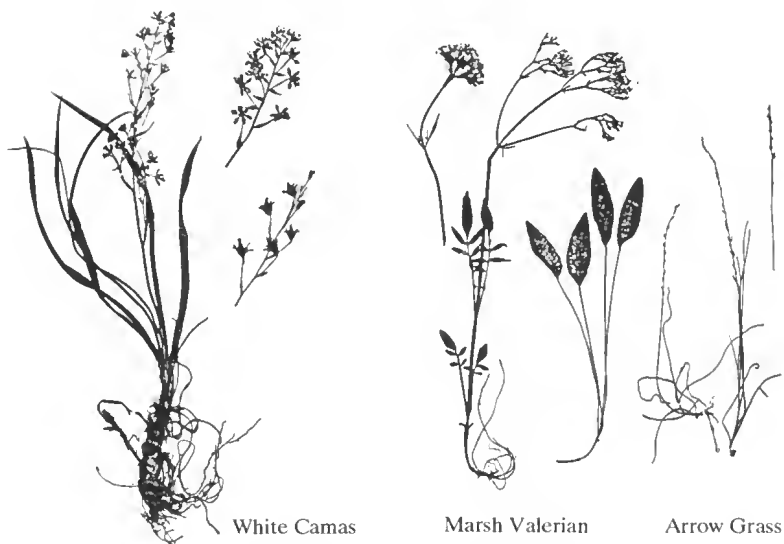


Figure 2. Three of the Plants Previously Unknown in Eastern Ontario

Overview of Events: 1990-91

In November, 1989, the Carleton Place District Office of the Ontario Ministry of Natural Resources (OMNR), declared:

"Considering the wetland classification work just completed and noting that the development proposed would have an adverse effect on the wetland, we must now object to Official Plan Amendment #10 (Leitrim). Our objection would be withdrawn however, if the wetland is deleted from the area covered by the Official Plan Amendment."

January, 1990, brought about a stunning reversal of OMNR's position when it reneged on its responsibility to defend that part of the wetlands within the proposed Leitrim Urban Area before the OMB Protest letters were written to both the OMNR Minister and the Carleton Place District Manager reminding them of their mandate to protect Class 1 wetlands. However, their position remained unchanged and no reasonable explanation offered. The developer, along with local politicians, pressed forward with their agenda.

On April 24, 1990, the Planning Committee of the Regional Municipality of Ottawa-Carleton (RMOC) reviewed Gloucester's Official Plan Amendment #10 (OPA #10). Ignoring presentations from The Ottawa Field-Naturalists' Club (OFNC) and others seeking to preserve this unique Eastern Ontario wetland, Planning Committee adopted OPA #10 without modification. The politicians, quick to criticize what they considered an eleventh-hour disruption of two years of planning, remained unimpressed by the ecological value of the wetlands. No acknowledgement was made of the fact that I had informed officials the pre-vious summer of the wetland's existence.

Within a few days of OPA #10 approval, six requests for its referral to the Ontario Municipal Board were filed with the support of RMOC's Planning Department. However, the Planning Committee declared on June 19 that the requests were "frivolous, vexatious or made for the purpose of delay", and refused to refer the matter to OMB. The following day, Regional Council waived the notice requirements under By-law 170-82 (two-week waiting period) and upheld the Planning Committee's decision.

In July, the OFNC, several other groups and I began meeting periodically with Tartan Homes Ltd., the lead developer, hoping to agree on methods to protect the wetlands and Findlay Creek while permitting some form of development. To gain more scientific data, Tartan retained Golder Associates Ltd. to undertake a hydrological study and Cumming Cockburn Limited to prepare an environmental analysis. Cumming Cockburn drew up wetland boundaries for the Leitrim Urban Area which were quite similar to those of OMNR. Cumming Cockburn also delimited a boundary for what they considered to be the "core" area for the wetland based on vague criteria. Discussions focused on how much additional land beyond the "core" was essential to protect the wetlands. To help resolve this question, a group interested in preserving the wetlands began

investigating the zone outside the "core" and provided the findings to Cumming Cockburn.

In September, 1990, Gloucester finally acknowledged the presence of a Class 1 wetland within its boundaries. Two months later, Tartan delineated that part of the wetlands it was willing to save (Figure 4) and deed to public ownership. The boundary line was virtually unchanged from the core line presented earlier. Saving additional wetlands was considered by the developer to be "economically unfeasible". Unwilling to condone the destruction of one-fifth of the wetland, I abstained from future discussions, but Michael Murphy, representing a coalition of environmental groups and individuals continued, hoping for a change in Tartan's position.



Figure 3. Ancient Cedar Woods

A positive note at this time was Gloucester's willingness to introduce zoning and land use designations for adjacent areas to protect the wetland's watershed.

Following the release of the Cumming Cockburn Report concluding that development would not adversely affect the remainder of the wetland or the trout stream, I requested that the project be designated under the Provincial Environmental Assessment Act. (At the time of writing (March 1992) this request was before the Minister of the Environment for a decision, and is being contested by Tartan as being premature and unjustified).

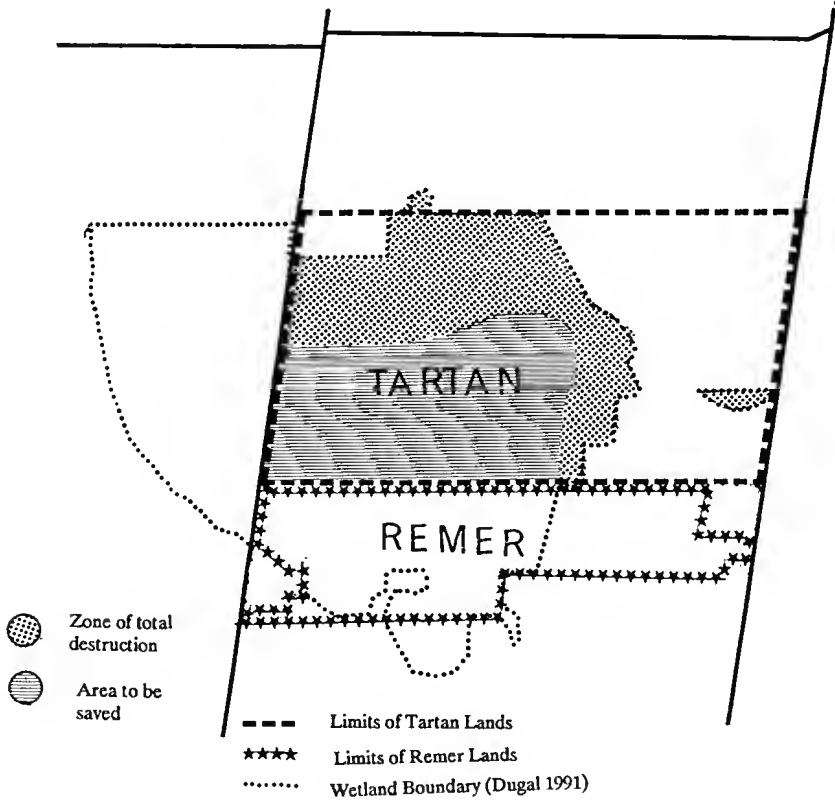


Figure 4. Wetland Area to be Destroyed for Proposed Subdivision

In late summer, 1991, on application of the landowners, the OMB extended the Leitrim Urban Area southward to include the lands of Remer Holdings Ltd. (another developer) with the proviso that the wetland segment to be protected be defined to the satisfaction of the OMNR, Gloucester and RMOC. Remer

has stated a willingness to hand over this portion of the wetland to the public domain.

Tartan's subdivision plans must be approved by Gloucester and RMOC. Once these plans are submitted, an OMB hearing can be requested without RMOC's consent.



Figure 5. Towering, mature Cottonwoods (Populus deltoides) in the southern part of the wetlands

Ongoing investigations of the wetland east of Albion Road yielded a clearer understanding of its origins, complexity, plant communities, hydrology and history. A study of aerial photos (back to 1945) and old topographic maps (back to 1906), and careful observation of the plant communities have formed the basis for evaluation of major events since European settlement. The hydrogeological evaluation by Golder Associates Ltd. and the Cumming Cockburn Report did provide some useful data, but I strongly disagree with many of their conclusions.

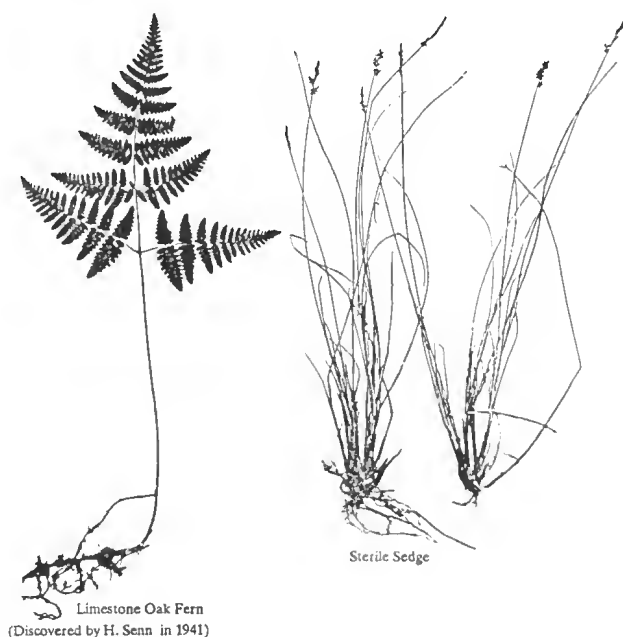


Figure 6. Vascular Plants new to the Ottawa District

Additional Regionally Significant Plants

In 1990-91, an additional 61 regionally significant plants* were found (Table 1) which included two plants new to the Ottawa District and three plants new to Ottawa-Carleton. A "new" record for the Ottawa District is the nationally and provincially rare Limestone Oak Fern (Figure 6) discovered by H.Senn in 1941. In three years of exploration, I have failed to locate its site but remain optimistic it is still extant in the area.

Regional Significance of the Leitrim Wetlands

Botanical evidence indicates that the Leitrim Wetlands is the only one of its kind in Eastern Ontario. As such, it is impossible to make comparisons with other ecosystems in the area. Even though it may contain more regionally significant plants and bryophytes than Mer Bleue (Table 2), it cannot be accorded a higher value because these ecosystems are so different (i.e. Mer Bleue is an acid bog, Leitrim, primarily an alkaline fen). However, it does have one of the highest percentages of significant vascular plants in the areas studied in Ottawa-Carleton (Table 3), and was assigned one of the highest ratings for wetlands in Eastern Ontario by OMNR using "An Evaluation System for Wetlands in Ontario".

*Based on Gillett & White's "Checklist of Vascular Plants of the Ottawa-Hull Region, Canada."

Table 1. Additional significant vascular plants and bryophytes in the Leitrim (Albion Road) Wetlands, 1990-91 (based on collections and identifications made by members of Botany Section, Canadian Museum of Nature.)

VASCULAR PLANTS NEW TO THE OTTAWA-DISTRICT

<i>Carex sterilis</i>	Sterile Sedge
<i>Gymnocarpium robertianum</i>	Limestone Oak Fern

VASCULAR PLANTS NEW TO OTTAWA-CARLETON

<i>Ceratophyllum echinatum</i>	Prickly Hornwort
--------------------------------	------------------

BRYOPHYTES (MOSESSES) NEW TO OTTAWA-CARLETON

<i>Polytrichum formosum</i>
<i>Drepanocladus revolvens</i> var. <i>intermedius</i>

OTHER SIGNIFICANT VASCULAR PLANTS

(based on Gillet and White's "Checklist of Vascular Plants of the Ottawa-Hull Region, Canada")

Rare

<i>Carex gynocrates</i>	Ridged Sedge
<i>Scirpus pedicellatus</i>	Pedicellate Wool-grass
* <i>Salix purpurea</i>	Basket Willow
<i>Betula x sandbergii</i>	Sandberg's Birch
* <i>Lactuca muralis</i>	Wall Lettuce

Sparse

* <i>Pinus sylvestris</i>	Scot's Pine
<i>Sparganium chlorocarpum</i>	Green Bur-reed
<i>Potamogeton foliosus</i>	Leafy Pondweed
<i>Potamogeton nodosus</i>	Knotted Pondweed
* <i>Hydrocharis morsus-ranae</i>	Frog's-bit
<i>Brachyelytrum erectum</i>	Bearded Shorthusk
<i>Sphenopholis intermedia</i>	Slender Wedge Grass
<i>Carex debilis</i>	Weak Sedge
<i>Carex paupercula</i>	Stunted Sedge
<i>Carex sychnocephala</i>	Compact Sedge
<i>Cyperus strigosus</i>	Strigose Cyperus
<i>Juncus canadensis</i>	Canada Rush
<i>Salix myrsinifolia</i>	
* <i>Acer ginnala</i>	Amur Maple
* <i>Rhamnus frangula</i> var. <i>asplenifolia</i>	Black Buckthorn

Hypericum punctatum
Viola renifolia
Epilobium strictum
Myriophyllum verticillatum
Hackelia virginiana
Utricularia minor
 **Hieracium pilosella*
 **Hieracium pratense*

Spotted St. John's-wort
 Kidney-leaved Violet
 Downy Willow-herb
 Whorled Water-milfoil
 Virginian Stickseed
 Lesser Bladderwort
 Mouse-ear Hawkweed
 Field Hawkweed

Locally Common

Pogonia Ophioglossoides
Penstemon digitalis

Rose Pogonia
 Fox-glove Beard Tongue

Uncommon

Equisetum variegatum
Potamogeton epiphydrus
Najas flexilis
Alopecurus aequalis
Glyceria canadensis
Carex aurea
Carex comosa
Carex granularis
Carex leptoneura
Carex vulpinoidea
Eleocharis erythropoda
Scirpus microcarpus
 **Salix alba*
Salix amygdaloides
Salix eriocephala
Salix nigra
 **Salix x rubens*
Ranunculus pensylvanicus
Ranunculus recurvatus
Penthorum sedoides
Amelanchier spicata var. *spicata*
Cicuta maculata
Gentiana andrewsii
Cuscuta gronovii
Veronica scutellata
 **Tanacetum vulgare*

Variegated Horsetail
 Emerged Pondweed
 Naiad
 Short-awn Foxtail
 Canada Manna Grass
 Golden Sedge
 Bristly Sedge
 Granular Sedge
 Finely-nerved Sedge
 Fox Sedge
 Red-stemmed Spike-rush
 Red-sheathed Bulrush
 White Willow
 Peach-leaf Willow
 Heart-leaved Willow
 Black Willow
 Bristly Crowfoot
 Hooked Crowfoot
 Ditch-stonecrop
 Shadbush
 Water-Hemlock
 Bottle Gentian
 Dodder
 Marsh Speedwell
 Common Tansy

* = adventive, naturalized or escaped from cultivation²⁴

Table 2. Numbers of Bryophytes and regionally significant vascular plants in the wetland components of the Mer Bleue and Leitrim Wetlands complexes as of December 31,1991.

PROVINCIALY SIGNIFICANT PLANTS	
Mer Bleue	10 (3 probably extinct)
Leitrim Wetlands	2
TOTAL RARE VASCULAR PLANTS	
Mer Bleue	27 (4 probably extinct)
Leitrim Wetlands	19
TOTAL SPARSE VASCULAR PLANTS	
Mer Bleue	46 (1 probably extinct)
Leitrim Wetlands	48
TOTAL LOCALLY COMMON VASCULAR PLANTS	
Mer Bleue	12
Leitrim Wetlands	12
TOTAL UNCOMMON VASCULAR PLANTS	
Mer Bleue	56
Leitrim Wetlands	68
TOTAL REGIONALLY SIGNIFICANT VASCULAR PLANTS	
Mer Bleue	151
Leitrim Wetlands	149
TOTAL BRYOPHYTES	
Mer Bleue	44
Leitrim Wetlands	128 □

Table 3. Percentage of significant vascular plants in areas studied botanically in Ottawa-Carleton as of December 31,1991.

Leitrim Wetlands Complex* (Dugal 1989)	37%
Wetland component** 43%	
Mer Bleue Complex (Brunton 1984)	37%
Wetland component 37%	
South Gloucester Study Area (Dugal 1989)	33%
Stony Swamp (Brunton 1982)	32%
Shirley's Bay (Brunton 1980)	27%
Green's Creek (Brunton 1983)	21%

* denotes both wetland and non-wetland plant communities

** denotes wetland only plant communities □

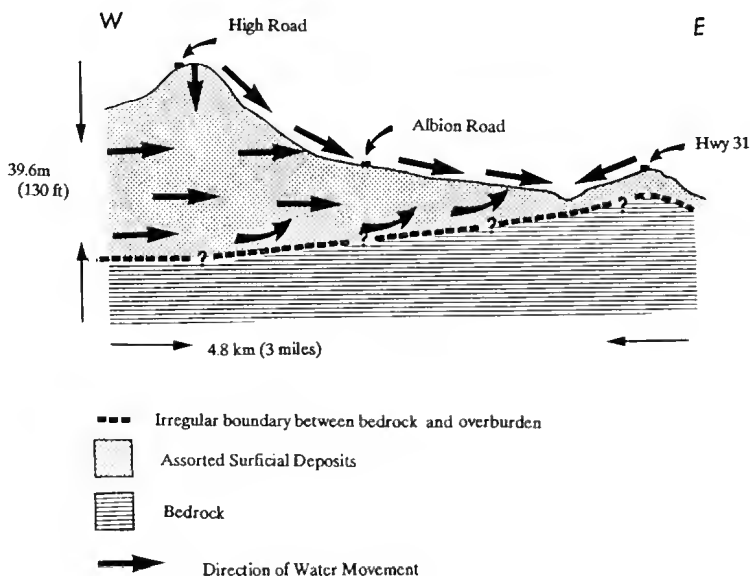


Figure 7. Schematic surface water and groundwater flow systems in an East-West transect through the wetlands slightly south of the East-West Ditch

Bases for Wetland Formation

T.C. Winter, U.S. Geological Survey, Denver Federal Center, writes: "All wetlands are a result of a physiographic setting and water balance that favour the accumulation or retention of soil water and/or surface water for a period of time". Two principal topographic controls responsible for the Leitrim Wetlands are minimal land slope and discontinuities in the slope of the water table and land surface. On the east side of Albion Road, the northern third of the wetland slopes gently and consequently surface drainage is slow. To the south and west, the land rises upwards to 21.3 m. [70 ft.](Figure 7). In some areas where the slope changes rapidly, constant groundwater seepage can be observed. Elsewhere, upwelling is caused by changes in the permeability of surficial deposits and subsurface configurations of the bedrock. The importance of the latter is underlined by Cumming Cockburn: "bedrock ridge located approximately parallel to Highway 31 (Bank Street) impedes groundwater movement to the east. As a result of this and in combination with on-site conditions, the water

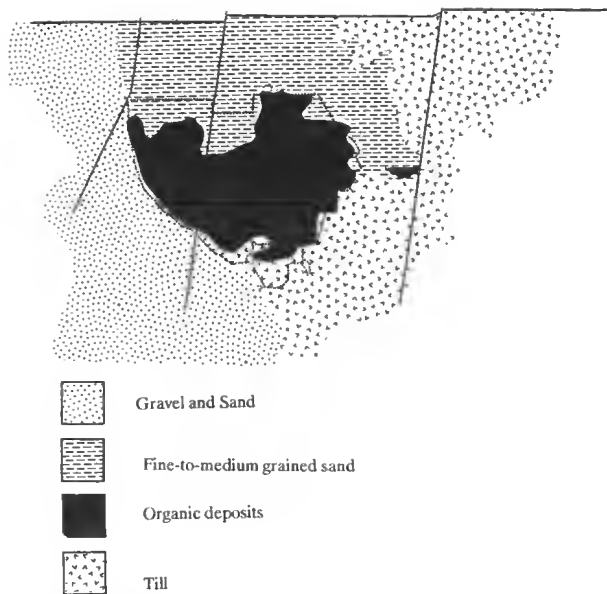


Figure 8. Surficial Geology of the Leitrim Wetlands area based on Map 1506A, Geological Survey of Canada

table is near the surface over much of the site. Drainage from the west side of the bedrock ridge is via a single outlet at Highway 31. As a result of the poor drainage characteristics, a peat wetland and a fen were formed." Cumming Cockburn, in the same report, also concluded that "the wetlands including the fen, exist as a direct result of the local sand and gravel outwash formations which force ground water to the surface in the southwest part of the property".

There are, according to the Geological Survey of Canada, four types of surficial deposits in the area: 1) till, 2) gravel and sand, 3) fine-to-medium-grained sand, and 4) organic deposits (Figure 8). More detailed studies in the area of the toxic waste dump indicate the presence of additional sediments such as very fine silty sands, silty sand and silt, clayey sand and silt and even some inter-bedded silt and clay. Cumming Cockburn describe three types of surficial soils:

"silt and fine-to-medium (calcareous) sand, nearshore sediments located north of the East-West Ditch

glacial till immediately east, and in the northeasternmost corner, of the property

peat to depths of 2.4 m. over sandy silt to silty sand in much of the southwestern sector of the property."

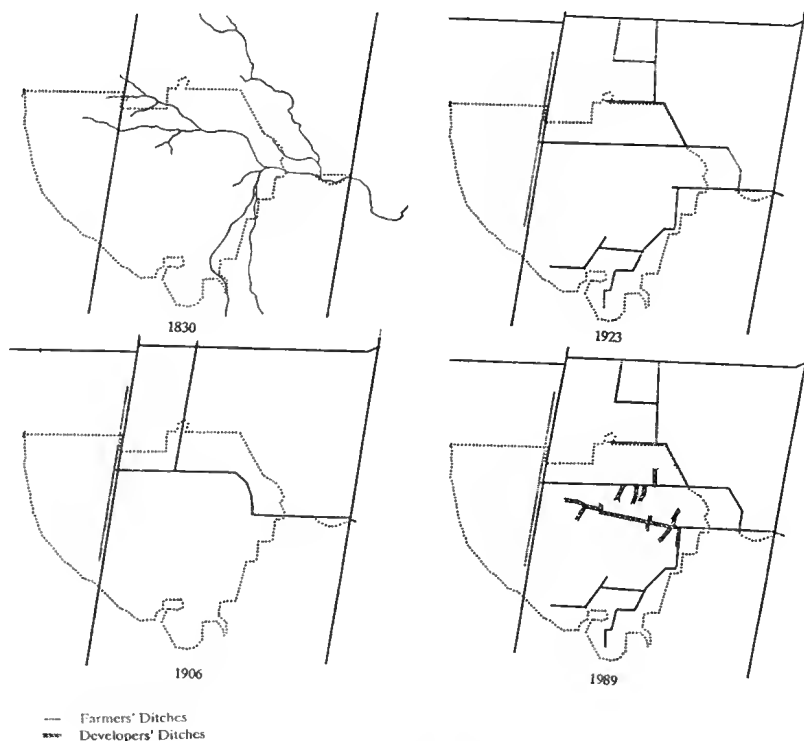


Figure 9. Wetlands Drainage 1830-1989

Drainage

Prior to settlement, water flowed slowly through the wetlands via several branches of Findlay Creek. Between 1879 and 1906, construction of a system of ditches diverted waterflows from some branches and channelized others (Figure 9). A more extensive drainage scheme was completed *ca.* 1920 further modifying and deepening Findlay Creek and profoundly affecting the wetlands. The fen, as visible in aerial photos from 1945 to the present, gradually diminished. Cumming Cockburn noted a dramatic increase in tree growth ring size dating about 70 years ago, indicating a drop in the water table that correlates with the *ca.* 1920 drainage. Tartan's 1988 ditching aggravated the situation by removing even more moisture, raising the temperature of ditchwater, increasing erosion rates, killing Larch trees, and spurring the growth of the invasive Black Buckthorn in the fen.

Both the pre-1906 and *ca.* 1920 drainage schemes (and to a much lesser extent Tartan's 1988 ditching) affected the peat deposits.



Figure 10. Perched Eastern White Cedar with 0.6m of roots exposed (foreground) due to peat wastage

Peat Wastage

Peat deposits are formed under conditions where oxygen is largely excluded, arresting the decay of plant remains (accumulation exceeds decomposition). Draining peatlands disrupts this process, reducing accumulation and accelerating decay to the point where peat wastage or oxidation is prevalent. As observed by S.R. Eyre in "Vegetation and Soils":

"This organic material persisted almost unchanged under the waterlogged conditions in which it had accumulated but as soon as the water table was lowered decay bacteria were activated in the aerated upper layer. Very little insoluble material remains when peat decays so that inch by inch, the soil in drained cultivated fields has fallen below its original level."

J.N. Hutchinson, Imperial College, London, reports that at Holme Fen in England the land surface fell 3.65 m. (12 ft.) in 100 years due to peat decay caused by drainage. He also claims that alkaline fen peats tend to have higher rates of wastage than acid bog peats. As much of the peat at Leitrim is alkaline by nature, wastage rates would have been substantial in areas where the water table was lowered for a lengthy period. For example, the long-cultivated fields bordering Albion Road would have had an initial peat covering of at least 0.6-0.9 m. (2-3 ft.).

Although pre-1906 drainage activated peat wastage along Albion Road, it apparently had little effect on the remaining southern part of the wetlands east of the road. However, the extensive *ca.* 1920 ditching with its widespread lowering of the water table had dramatic effects. It halted most of the peat accumulation process east of Albion Road and started extensive, ongoing peat oxidation in parts north and south of the East-West ditch. Perched trees (Figure 10) indicate peat losses up to 0.6 m. (2 ft.) in places hundreds of metres away from the ditches. Aerial photos indicate even greater wastage occurring in the ditch area southeast of the fen where an "island" of higher ground increased by over 50% due to lowering of the organic substrate.

As peat oxidizes, soil level drops and approaches the water table where a state of stabilization is reached. This continues to be an ongoing process. It is worth noting that peat wastage releases CO₂, a greenhouse effect gas. According to George Lee, Canmet Branch of Energy, Mines and Resources, a cubic metre of peat releases approximately 225-250 kilograms of CO₂ (personal communication). Several hundred thousand metric tonnes of CO₂ have likely already been released because of drainage schemes at Leitrim.

Cultivated vs. Non-Cultivated Lands

Throughout 1991-92, I carefully examined most of the Tartan-owned wetlands in order to verify the contradictory statements made by Cumming Cockburn as to which areas had been cultivated in the past. I searched for indicators of non-cultivation such as large, fallen and decaying tree trunks, old stumps, irregular or hummocky topography and rocks. Aerial photos and old topographic maps supplemented ground studies. Fortunately, the time span between the last major agricultural assault and the first aerial photos was only about 25 years, allowing observation of ploughing patterns in land that had been rapidly abandoned due to excessive wetness. My study indicated less land cultivation than suggested by Cumming Cockburn (Figure 11).

Immediately Threatened Plant Communities

At present, about 30 plant communities, varying in age and composition, lie within the area proposed for housing. Twenty-four of these will be totally destroyed and six reduced in size. Among those destined for annihilation are: cattail marshes, assorted woodlands, a variety of shrubby thickets and several kinds of wetfield communities. These contain at least 63 species of regionally

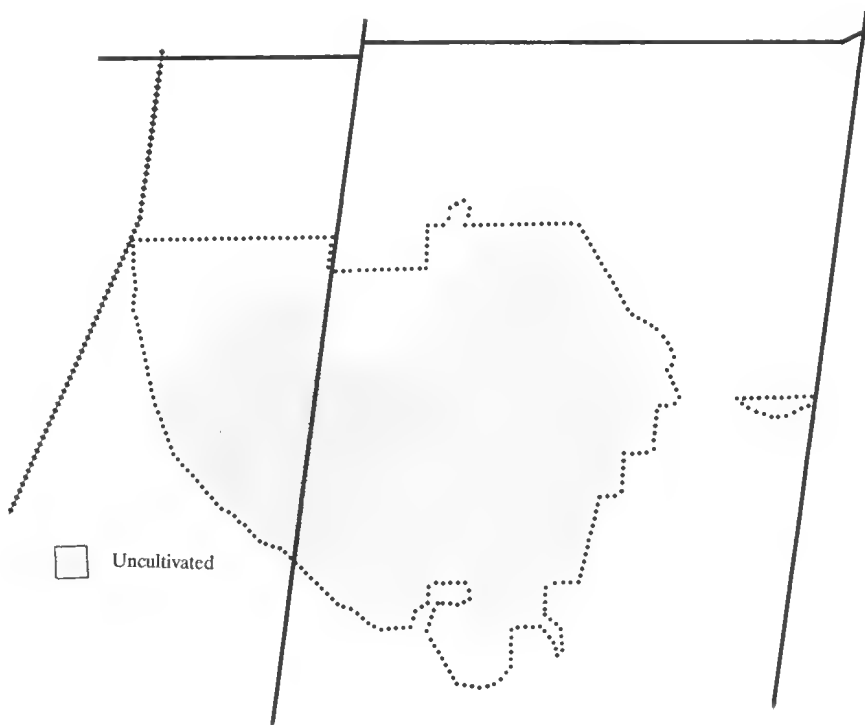


Figure 11. Wetlands Area never cultivated

significant plants, 20 of which have been seen only in this part of the wetlands, including Prickly Hornwort (Figure 12)-- a new record for Ottawa-Carleton.



Figure 12. Prickly Hornwort

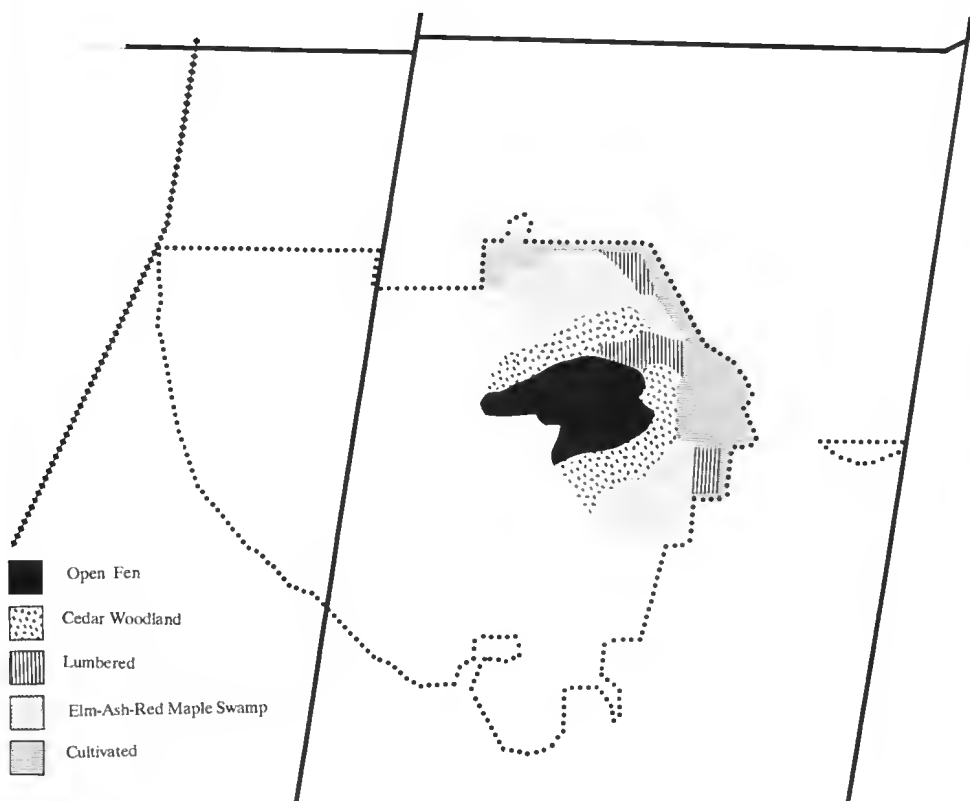


Figure 13. North-east section of the wetland in 1923

Seventy years ago, the area was quite different (Figure 13). Old cedar stumps south of the East-West ditch and drowned cedar trees up to 130 years old, as well as large, fallen and decaying Elm trunks (over 100 years old) on the north side of the East-West ditch, indicate the presence of a fairly continuous woodland. Shortly after 1923, most of the trees between the Larch woods and the East-West ditch were cut, but the area was not cultivated. Natural succession followed. North of the East-West ditch extending to the farmer's lane, limited lumbering took place. However, between 1955 and 1967, Dutch Elm disease devastated the Elm woodland here and southeast of the fen. In the late 1970's and early 1980's beaver flooding drowned most of the cedar trees and remaining hardwoods, as well as some of the shrubby growth around the East-West ditch. These natural events destroyed most of the old trees, but the rich herbaceous flora remained and the cycle of regeneration is slowly underway. Large parts of the area are now covered with cattail marsh.

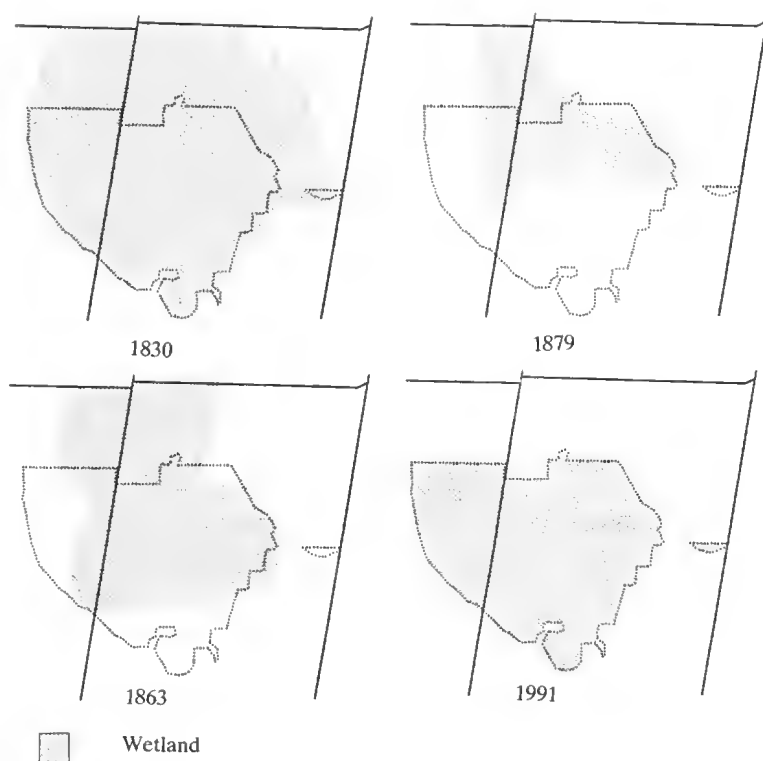


Figure 14. Wetland Boundaries: 1830-1991

Note: The 1863 and 1879 boundaries show only the wettest parts of the wetland

Wetland Boundaries Past to Present

The earliest mappings of the Leitrim Wetlands--the 1863 Map of the County of Carleton by H.F. Walling and the 1879 Belden Atlas of Carleton County--depicted only the wettest parts of this ecosystem (Figure 14). Existing plant communities, soil types, highwater table, past drainage schemes and slow surface drainage all indicate a total wetland area much larger than illustrated in the 19th Century maps. This is confirmed by old drainage records in Gloucester's archives. Determining the actual extent of the wetlands prior to settlement is difficult. However, based on present-day knowledge, a plausible boundary *ca.* 1830 can be suggested. The wetlands extended beyond Highway 31 in the vicinity of Findlay Creek. A remnant of the wetlands lies immediately west of the highway, located between the old stream bed and channelized creek.

With cultivation appeared an onslaught of ditching, and by the early 1920's over one-third of the original wetlands was being farmed. This same decade witnessed the beginning of land abandonment which continued until recently with old fields gradually reverting to wetland plant communities.



Figure 15. Martha Camfield examines the trunk of a ± 120 year old Eastern White Cedar, north of the East-West Ditch. This tree was drowned by beaver activity

OMNR's acknowledgement in November 1989 that the Leitrim Wetlands was indeed a Class 1, regionally and provincially significant wetland, sparked some discussion as to whether or not their boundaries represented the actual limits of today's wetlands. In 1990, Cumming Cockburn delimited a boundary on the Tartan et al lands (north of the Blais Road right-of-way) which differed slightly from OMNR's. Later that year, environmental groups produced a boundary incorporating parts of the OMNR and Cumming Cockburn limits plus some necessary modifications to the OMNR boundary south of the Blais Road. In 1991, further exploration indicated that adjacent areas (originally part of the wetlands) had been re-established due to beaver activity (Figures 15 and 16). Therefore, the southern boundary was altered to reflect these regenerating areas, plus a critical buffer zone to the east. The remnant of the wetland immediately west of Highway 31 was also discovered.



Figure 16. Reclamation by beaver activity in the southernmost section of wetland

Findlay Creek

Findlay Creek is one of the last put-and-take trout streams in Ottawa-Carleton. It is predominantly channelized, drains the wetland, and eventually joins the North Castor River. West of Highway 31, between the old stream bed and new ditch, lies a small, lush plant community, a fragment of the once more extensive wetlands. It contains at least eleven regionally significant plant species and many mature trees, including Yellow Birch, Butternut, Cedar and Elm, some of which are + 100 years old.

East of Highway 31, the creek flows through a farmer's field, bordered by cedars and deciduous trees. Passing under the farmer's lane, the creek enters a small valley with mature riparian (stream bank) vegetation extending to Blais Road. This stretch of waterway is rocky-bottomed, flows over a number of riffles, has a series of pools and is shaded by trees and shrubs--an excellent fish habitat! Vegetation abounds with wildlife food species (Figures 17 and 18).



Figure 17. Shady pool in threatened part of Findlay Creek

Contrary to assurances by Tartan that this part of the stream would remain unaltered, Cumming Cockburn states: "Development of OPA #10 lands located west of Highway 31 is dependent on the lowering of the Findlay Creek invert between Highway 31 and Blais Road"--i.e., deepening the channel and destroying most of the riparian vegetation. Once disrupted, vegetation could take 70 years to emulate its present condition, and the fishery would, of course, suffer in the interim.

The Cumming Cockburn Report "Planning for Leitrim -- An Integrated Approach"

This report contains useful and valid information, however, parts of it tend to be vague, confusing or erroneous. Not one reference is made to wetland hydrology, in spite of the recent publication of several important papers in the field; nor is there a single listing dealing with ecological processes. Certain conclusions indicate a lack of comprehensive understanding of peat wastage and its



Figure 18. Findlay Creek at Blais Road

ramifications. As well, the dramatic effects of Dutch Elm disease and beaver flooding on plant communities were largely unappreciated. Some judgments based on their study of aerial photos appear to be inaccurate, e.g., they claimed that one area had been used for agriculture, when, in fact, a sea of old cedar stumps indicates lumbering, not cultivation. Claims of impermeability of substrate beneath and north of the wetland are unjustified as even most rock types exhibit some degree of permeability. Their use of the term "peripheral wetland" is inappropriate both historically and now.

Cumming Cockburn theorize: "In general, the conclusion of this study is that a functional, sustainable wetland and stream ecosystem will persist with the development proposed.". Their claim is based on the supposition that "the water table would be maintained at the desired level". This deduction is totally unsupported by recent wetland studies. T.C. Winter notes: "It is apparent that the scientific foundation for understanding wetland hydrology is very weak.

The topic has not attracted the attention of many hydrologists; therefore, field studies have been few and most have not been comprehensive. Most hydrologic information relative to wetlands has been based largely on theoretical studies of generalized settings, on scattered field studies and on hydrologic intuition."

Of special interest is his conclusion: "Because the hydrologic system is a continuum, any modification of the continuum will impact contiguous parts. Therefore, modification of the hydrologic system is a self-perpetuating process, because the solution to one problem generally creates a problem for the contiguous area, which in turn must be modified. The seriousness of the impact commonly is related to scale."

Direct evidence from the Leitrim Wetlands also casts serious doubt on Cumming Cockburn's prediction of a sustainable ecosystem. The extensive, ongoing peat wastage and the dramatic shrinkage of the open fen *ca.* 1920 (Figure 19) contradict the claim that sufficient surface and ground water is entering the wetlands to maintain it.



Figure 19. Reduction in size of open fen from c. 1920 to 1983 illustrating the dramatic effects of lowered water table due to drainage

Cumming Cockburn were aware of, but failed to fully explore, the ramifications of a dramatic lowering of the water table about 70 years ago as demonstrated by cores they had extracted from old Larch trees. One hundred and eighty years of tiny annual growth rings were followed by substantially larger ones, indicating drier conditions (i.e. drop in soil water levels). They had some inkling as to the cause for they remark: "One possible scenario might have involved surrounding drainage efforts connected with agricultural activities--for example, changes to local groundwater table elevations, and the nature of groundwater upwelling". As no major climatic changes occurred at that time, the most plausible explanation for a drop in the overall water table is the ditching completed *ca.* 1920.

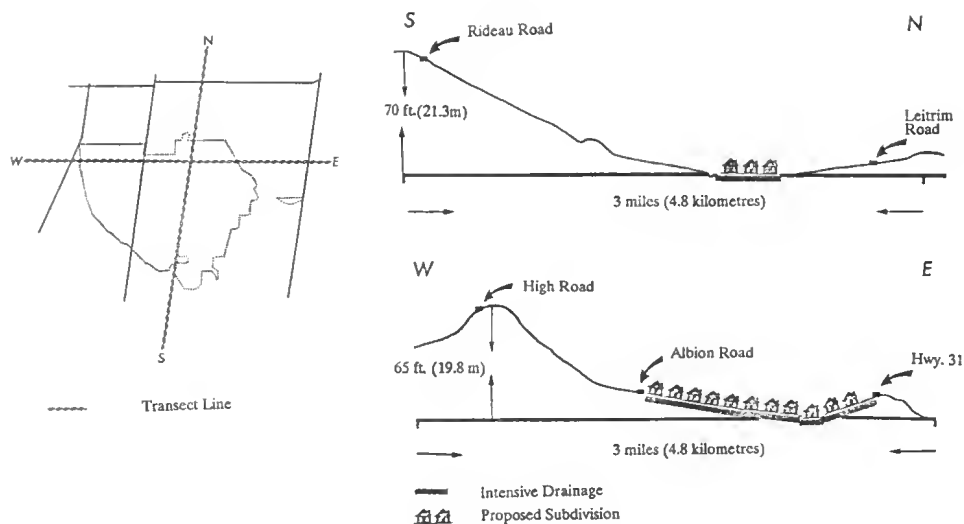


Figure 20. Transverse sections of the wetland and proposed subdivisiuon

If lowering the water table by those few ditches caused such profound effects, imagine what would happen if Tartan destroyed one-fifth of the wetlands (75 hectares), including the lowest sections (Figure 20) and the critical outlet area. The water table would have to be lowered about 1.8 m. (6 ft.) to accommodate basements. Considering the complexity of the hydrology and existing abundance of water, an extensive, highly efficient drainage system will be required (Figure 20). The housing project will, in effect, create a gigantic sumphole with a critical interface of over 2.4 km. (1½ miles) with what remains of the wetlands. This will have a disastrous impact on the entire ecosystem as the critical substrate (sandy-to-silty subsoil) is, contrary to Cumming Cockburn, quite permeable and will allow draining of groundwater. Cumming Cockburn have falsely assumed that "Impermeable soil conditions beneath and north of the Leitrim peatland precludes groundwater". Obviously, this did not impede the movement of toxic wastes which have migrated downward 25.9 metres and laterally over 600 metres from the landfill site. In fact, the surficial deposits ranging from sandy silt to medium sand are, according to Dr. W.D. Reynolds, a soil scientist with Agriculture Canada, permeable (personal communication). As depicted in Bear's "Hydraulics of Groundwater", the most permeable soils are clean gravels and the least, unweathered clays. Even clay permits water movement otherwise tile drainage would be ineffectual.

Not only do these sediments allow for infiltration of water, they also permit upwelling. Several people have witnessed water bubbling up through this "impermeable" material north of the peatland on the north side of the new ditch during the height of the severe 1991 drought! West of this site is another area of upwelling where rust-coloured deposits abound. Dr. Gray Merriam, Professor of Ecology at Carleton University, Ottawa, has suggested that this staining is evidence for deep-seated upwelling (personal communication). It is known that the water emanating from this site comes from below because: 1) a walk around this low area shows no surface water entering from the south or east, and 2) due to its proximity to Albion Road, the deep west ditch effectively diverts all surface and shallow subsurface waters. Nearby, large quantities of water feeding the western section of the new Tartan ditch can be traced to a similar origin.

Rusty-coloured sediment in water channels north of the East-West ditch also suggest upwelling, possibly explaining why this section was never cultivated even though it was surrounded by ditches which should have controlled surface and shallow subsurface water as in adjoining fields to the east and west.

To exacerbate the situation, the developers plan to deepen Findlay Creek from within the wetland boundaries to Blais Road. Part of this stream bed lowering includes excavating a storage channel through part of the critical bedrock ridge just west of Bank Street. According to Cumming Cockburn, "this would remove a present impediment to groundwater to Findlay Creek in the vicinity of Bank Street", and "increase groundwater and base flows". In other words, once the rock dike is breached, additional water will flow from the so-called "Impermeable" substrate near Bank Street. Since this substrate is the same as that to the north and beneath the wetlands, it follows that the same effect on groundwater will be generated by the proposed subdivision's drainage scheme, thereby, as Dr. Merriam points out, "draining out at depth the upwelling source that is largely responsible for the wetland".

The entire wetland's water table was dramatically affected *ca.* 1920 by lowering the Findlay Creek channel. As it is a major control unit for maintenance of the water table, it can be compared to the plug in a bathtub, and any modification of the stream channel's depth will have far-reaching negative impacts.

I agree with Cumming Cockburn's assertion that "no lowering of the water table through drainage is compatible with the wetland system in areas where the cone of influence of the lowering can affect the wetland water table or annual flow regime". However, development, as proposed, will, ironically, effectuate this exact situation.

"Peripheral" Wetlands

One of the most misleading terms used by Cumming Cockburn is "Non-Peatland Peripheral Wetlands". Their delimiting line "was based on an interpretation of the soils, hydrogeology and peat thickness", and "was intended to reflect the boundary between the permeable soils and the impermeable soils

of the northern slope. This line would then define the area fed by the dominant groundwater flows from the main recharge areas to the southwest." Since the advent of farming, at least 0.6 m. (2 ft.) of peat has oxidized in these areas. The peripheral wetlands would have been at least 50% smaller if Cumming Cockburn had delimited their "peripheral wetlands" based on peat depth in 1920. The implication that there is a change of substrate associated with their boundary crumbles under scrutiny. The most recent surficial geology map, the new 1988 ditching system, and the redigging in 1991 of the Albion Road ditches, amply demonstrate that substrate change occurs well to the west and south of the pseudo "peripheral wetlands". The visible upwelling of water also negates their definition and implies that the area hydrology is improperly understood.

Cumming Cockburn declare these areas "exhibit little-to-no-peat accumulation although they have moist-to-wet soil moisture regimes". In fact, most plant communities and much of the remaining wetland have been in a negative peat-accumulating state due to lowering the water table by drainage. Areas around the East-West ditch, flooded by beavers in the late 1970's and 1980's, were building up more organic material than most parts of the wetlands.

Historically (contrary to Cumming Cockburn's opinion), the areas north and south of the East-West ditch were and continue to be intimately connected. The only human disruptions here were the channelization of the original Findlay Creek and tree cutting--activities no more disruptive than construction of the Albion Road. I suspect the use of the term "peripheral wetland" is an attempt to downplay the importance of this part of the wetland, thereby justifying urban development within a Class 1 wetland.

It is worth noting that a real peripheral wetland does exist about 0.8 km. (0.5 mile) south of the Leitrim wetland and is connected to it by a channelized stream.

Safeguarding the Wetlands and Findlay Creek

Preservation of the Leitrim wetland and Findlay Creek hinges on the implementation of a protection strategy which would:

- 1) safeguard water supplies feeding the wetlands;
- 2) ensure the water table in the lowest areas (and particularly near the outlet areas) is raised at least to the level of highest recent beaver flooding;
- 3) prohibit deepening Findlay Creek; and
- 4) halt all proposed development within the wetland boundaries as defined by Dugal 1991 (Figure 4).

Protecting Water Supplies

An important aspect of safeguarding water supplies is the production of a master drainage plan for all the lands (including Tartan and Remer properties) suitable for housing east and south of the wetlands. This would ensure that rain water and subsurface waters normally entering the wetlands remained undiverted by future urbanization.

Buffer and restrictive-use zones have to be established in the critical water recharge area. These would restrict the extraction of sand and gravel and large housing developments. Fortunately, the noise cone from aircraft using Uplands Airport should preclude the latter.

At the request of Gloucester, OMNR and Tartan, a schematic was produced to facilitate formulation of appropriate water recharge protection policies.

Restoring the Water Table

A drainage-induced lowering of the water table has resulted in insufficient water entering the wetlands since the 1920's, causing extensive peat wastage and open fen reduction. Elevating the water table would help to reverse this condition, but accomplishing this would entail: 1) excluding all development within the wetland boundary; 2) prohibiting deepening Findlay Creek; and 3) refilling or modifying the ditches to impede water drainage.

In the fall of 1991, Tartan plugged up its new 1988 ditch which bisected the fen. This was an excellent first step as the ditch was increasing water flowage out of the wetland, adversely affecting the unusual fen community and killing many Larch trees.

The East-West ditch should be modified with a series of dams designed to elevate the water table (Figure 21). I would suggest the same number (and placement) as built by beavers over the last two decades. Someone removed most of these dams early in 1991 causing a substantial water table drop in the surrounding plant communities, particularly on the north side of the ditch where beavers had dug a series of channels leading to the Poplar trees about a hundred metres to the north. Destruction of the beaver dams converted their channels into effective drainage ditches, further compounding the problem (Figure 22). Another two dams should be constructed in Findlay Creek east of the fen within the wetland boundary. The north-flowing drains southeast of the fen should also be plugged to retard water loss.

The deep west-side ditch, along Albion Road south of the East-West ditch, diverts a substantial volume of water. (During the height of the 1991 drought, over a third of the water feeding the East-West ditch originated here). This water should be redirected to its original course via a series of culverts or a modified, highly permeable roadbed under Albion Road. Widening of Albion Road should be prohibited due to inherent pollution from salt and motor vehicles.

The Black Buckthorn Menace

Black Buckthorn, *Rhamnus frangula*, an introduced European shrub, is spreading rapidly. It has already overwhelmed several plant communities (in one area forming an enormous 100-metre wide band) and will require an eradication / control program.

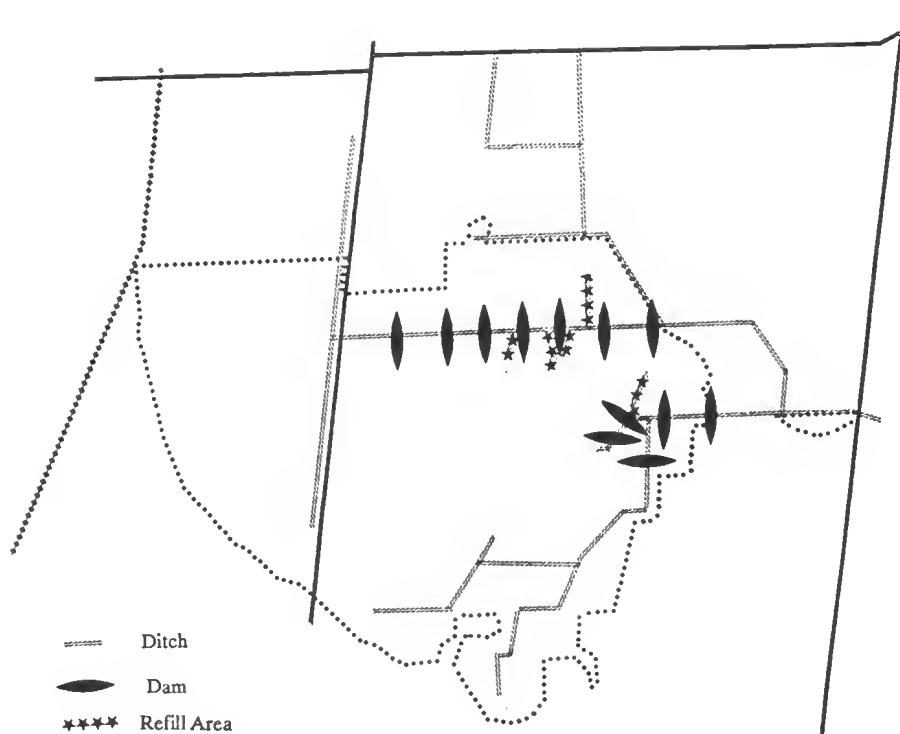


Figure 21. Suggested damming and refilling of existing ditches to elevate water table

Saving Findlay Creek

Findlay Creek is jeopardized by plans to deepen the channel from Highway 31 to Blais Road. A reasonable method of protecting the rich riparian vegetation, animal habitat and stream shading, would be construction of a floodway paralleling the creek east of Highway 31 and following the old stream bed west of this arterial. (A floodway is a channel excavated to reroute floodwaters, once a certain level is reached, around an area and back into the watercourse at some point downstream.) The floodway banks should be planted with trees and shrubs east of Highway 31, and the existing vegetation preserved west of the highway.

A further possible threat to Findlay Creek is contamination by toxic materials. If a "sumphole effect" is created by drainage requirements, migration of dangerous chemicals from the nearby landfill site could accelerate (Figure 1), enter subdivision drains, and be redirected into Findlay Creek.



Figure 22. East-West Ditch lowered by a metre following beaver dam destruction

Conclusion

Although developers have generously offered to deed a large part of the wetlands to the public domain, the section they plan to destroy for housing controls the critical water table for the whole ecosystem. A housing project within the wetland boundary would lower the water table throughout, ensuring the disappearance of the provincially significant fen community within a couple of decades. Many plant community components would change, and some regionally significant plant species die out. The diminution of the wetlands, and modifications or losses of plant communities, will affect the numbers and diversity of animal species, with some bird species disappearing altogether.

The rate of peat oxidation throughout the wetlands will increase due to the lowering of the water table. The large volumes of carbon dioxide already removed from the atmosphere through photosynthesis and stored for long



Figure 23. Marth Camfield dwarfed by immense, 100 year plus, White Pine in the southeast sector of wetland

periods of time as undecayed peat, will gradually be released (over a million metric tonnes) and contribute to global warming. (The ability to remove CO₂ from the air and store it for long periods is one of the great attributes of peatlands). The destruction of vegetation and organic soils in the 75 hectares of wetland destined for housing will also contribute CO₂ to the atmosphere.

Findlay Creek will be affected by lowering the water table. Several years after construction of the subdivision and the initial burst of rapid wetland drainage, there may be insufficient water to sustain this stream year-round, leading to fishery collapse.

The development block plan calls for massive storm water retention ponds, deepening of Findlay Creek and destruction of much of the riparian vegetation shading it. Developers profess the stream will be "enhanced" but, in my opinion, it will take decades to re-establish equivalent shading along its banks.

With land suitable for housing adjacent to the wetlands, why was the lowest, wettest, most environmentally sensitive, targeted for urbanization?

It is abundantly clear to me that drainage required for the proposed subdivision will dry out the remaining wetland and a unique, natural area in Ottawa-Carleton will be the victim of unsustainable development.

Acknowledgements: I am grateful to Dr. Robert R. Ireland and Linda M. Ley for collecting, identifying and rating bryophyte specimens. I am also thankful to Martha Camfield and other naturalists for help in the field. I would like to express my appreciation to Gilles Seguin, Records Management Co-ordinator, City of Gloucester, and the volunteers of the Gloucester Historical Society for their aid in finding old maps and drainage records. I am also indebted to Dr. Gray Merriam, Professor of Ecology at Carleton University, for his valuable comments and suggestions.

Voucher specimens of the vascular plants and bryophytes collected during this study have been deposited in the National Herbarium of Canada, Ottawa.

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In Memoriam: Louise de Kiriline Lawrence

The Club has lost another senior member with the passing on April 27, 1992 of Louise de Kiriline Lawrence. She was a widely respected and acclaimed writer on various aspects of natural history, with strong interest in ornithology. She joined our Club in 1970, and Honorary Membership was conferred on her at the 1981 Club Soirée (see *T&L*, 15(4): 1981). ▢

Elkanah Billings: Pioneer in Paleontology

Susan Jenkins

Elkanah Billings was a product of a time when the study of natural history was a very fashionable pastime, when shell collections and stuffed birds graced Victorian parlours, and when self-taught amateur scientists could rise to professional positions. In 1856 Elkanah Billings, former lawyer and newspaper editor, became the first paleontologist with the Geological Survey of Canada.

The City of Ottawa's Billings Estate Museum is celebrating the 150th anniversary of the Geological Survey of Canada in 1992 by mounting an exhibit on the life and times of Elkanah Billings. A collection of fossils from the Geological Survey, a number of which were originally identified by Elkanah, will be on display. Also included in the exhibit are various scientific tools of the era and examples of "natural history - style" parlour decorations, along with information on Elkanah's varied and fascinating life.

The exhibit is co-sponsored by the 150th anniversary committee of the Geological Survey of Canada. It opens May 17, 1992 and will run through to the end of October.

The Billings Estate Museum is located at 2100 Cabot Street off Pleasant Park, near Riverside Drive.

Admission is by donation. For more information please call 564-1363. ▢

Knotweed is Not to be Knocked

Jack Holiday

The summer of 1991 will be remembered as the "Summer of Summers". May was unusual in that we had no frosty nights and seventeen days above 70°F. June had 27 days above 70°F and only 3/4" of rain. July also was dry, 2 1/4" rain and every day over 70°F; 27 of those over 80°. August gave us 3" of rain and 30 days above 70°, 18 of those over 80°. In total, we had the equivalent heat of three normal summers. The lawns suffered. Most of us gave up trying to keep them green after about mid-July. Those who valiantly watered every day were dismayed at the water bills of \$200.00 or more.

The grasses browned and went into a dormant state - those that didn't die completely. The deep-rooted plants hung on and with the more frequent rains of September tried to take over our lawns, and in many cases, succeeded.

Most notable was that annual pest, the Knotweed, *Polygonum*. *Polygonum*, my dictionary states, "a kind of plant, fr. Gr. *polygononon* fr. *polys* many & *gony* knee, in allusion to the numerous joints".

From the central deep taproot many jointed stems emerge and the plant forms a ground-hugging mat resembling a green lace doily if growing singly, but more usually a tangled mat of many small plants struggling for existence.

Perhaps you noted a few in your lawn? Knotweed thrives on abuse. Along the Parkway road where the "salts of winter" kill the grasses for five or six feet from the curbs, the small reddish-colored Knotweed seedlings can be seen before the earth has completely thawed in April. Wherever grassy areas are crushed by vehicles or many feet, the Knotweed takes over. It seems to love frequent trimming by the lawn mower.

2-4-D may set it back for a while, but the strongest plants survive. In late summer, tiny pale green flowers with pink tips appear, but can only be seen by the very observant. The seeds which follow are almost invisible, each in a greenish husk. I had to dry a plant and then rub it between my palms to find them. Seen through a lens, the seeds are heart-shaped, about 2mm x 1mm.

The House Sparrows love them. As the seeds ripen in late August-early September, flocks of sparrows gather to feast, just like humans at the sight of the season's first strawberries.

The sparrows tug and shake the seeds free, like so many tiny terriers. They especially like areas where the plants grow over pavement. I suppose it is easier to find dropped seeds.

Late in October, the sparrows are joined by Juncos, White-Crowned and White-Throated Sparrows, stopping off on their journey to enjoy the plentiful seed.

All too soon, the snows come to cover everything, "white and crisp and even" and the birds must look elsewhere for food. But many seeds are still there under the ice and snow, and when March's strong sun melts the snow away, the birds return to feed once again on the knotweed seed.

If your lawn becomes infested with *Polygonum*, don't despair. It stays green all summer, only needs cutting once in a while, resists trampling, and, if you have a nice big patch, you may be visited by a flock of sparrows and Juncos that have come to dine where you can watch them closely. Perhaps we should root out the grasses and try growing Knotweed?□

Ecological Study of the Alfred Bog

Don Cuddy

Dr. Ted Mosquin's report on his 1989-90 study of the Alfred Bog is now available. The 124 page report, prepared for the Nature Conservancy of Canada, documents the history of the bog as well as its present condition. Plant communities, flora and fauna are described. The hydrology of the bog is examined and conclusions are drawn on how the bog ecosystem functions in response to water movement through the bog mat. Based upon his understanding of the ecological functioning of the bog, Mosquin makes a number of recommendations for managing the bog, many of which focus on the restoration and maintenance of water levels. The report is relatively free of scientific and technical jargon; common names are used for plants and animals in the text and scientific names are reserved for the species lists in appendices. The average person with an interest in the natural environment should have no trouble reading the report, and by doing so will learn a great deal about this unique and valuable part of our natural heritage. There are 38 colour photographs and several colour maps scattered through the report. Copies of the report are available at Club monthly meetings and other functions, or directly from the Nature Conservancy of Canada (794A Broadview Avenue, Toronto, Ontario M4K 2P7). The seemingly high price of \$40.00 is necessitated by the liberal use of colour illustrations and the limited print run. And, of course, proceeds from the sale of the report will be used to further the protection of Alfred Bog.□

The Loggerhead Shrike

Todd Norris

The continuing decline of the Loggerhead Shrike (*Lanius ludovicianus*) in Ontario and throughout most of northeastern North America has raised great concern among nature lovers and natural resource agencies throughout the province. The Committee On the Status of Endangered Wildlife In Canada (COSEWIC) has classified the eastern race of the Loggerhead as an endangered species, while the Ontario Ministry of Natural Resources is moving towards having the species designated under the province's Endangered Species Act.

In Ontario, the Loggerhead Shrike precariously continues to breed in what appears to be three core areas, all of which are situated upon limestone plains. These include the Carden Plain situated near Lake Simcoe, the Napanee Plain just north of the town of Napanee, stretching from Belleville to Kingston and the Smiths Falls Plain which stretches east of Smiths Falls from Brockville north to Pakenham.

During the summer of 1991, the Carden Plain and the Napanee Plain were actively searched for nesting shrikes. There were 5 confirmed nestings in the Carden area, 14 in Napanee and 5 happened to be reported from the Smiths Falls Plain. This coming summer, all areas will be searched under a coordinated effort of volunteers and researchers. Volunteers are being sought to undertake much of the survey work in order to locate as many shrike nests as possible. At the same time a research student, Amy Chabot, from McGill University will be conducting research on habitat used by the shrikes and as well birthrates and dates, fledging success and general shrike behaviour. Through this effort it is hoped that we will learn more about the habitat preferences of this species and perhaps learn something definitive about the reasons behind the decline of the species over much of its North American range.

Shrike survey volunteers will choose or be assigned 10 by 10 km. squares to survey by the shrike survey co-ordinator, Chris Grooms. All volunteers will receive an instruction kit which outlines proper survey technique and rules for the survey. Surveyors will survey the roads in their particular squares, looking for good shrike habitat. When it is found, surveyors will scan their surroundings for any sign of the shrikes. All information regarding sightings of birds or nests will be carefully recorded and at the end be given to the shrike survey co-ordinator. The co-ordinator will compile the information and present it to the various individuals and organizations who need it to aid in the preservation of the species in Ontario. Precautions are being taken to keep site data confidential.

If you would like to take part in this survey, please contact: Todd Norris (work 258-8454; home 258-2021) or Don Cuddy (work 258-8453; home 258-5953). We will then have Chris, the co-ordinator, get in contact with you.☐



DEADLINE: Material intended for the October - December 1992 issue must be in the editor's hands before August 1, 1991. Mail your manuscripts to:

Bill Gummer
Editor, *Trail & Landscape*
2230 Lawn Avenue
Ottawa, Ontario, K2B 7B2
(613) 596-1148

For Club Photographers... a Challenge

Betty Campbell

Take on a photo assignment for the club!

The Education & Publicity Committee is in the process of preparing slide shows on various subjects as a resource for those Club members who are willing to speak about naturalist subjects at various gatherings outside the club.

To date, the Committee has prepared an 80-slide series entitled "An Introduction to The Ottawa Field-Naturalists' Club". Accompanying the slides is a taped narration, which, when used in the Club's newly acquired Kodak Audio Viewer/Projector, will not only provide a commentary for the slides, but will change them automatically at the appropriate times.

A second slide series has been assembled for use when the Club display is set up. Using the same viewer/projector with its integral 30 cm. screen, we have a continuously running show of nature subjects and text information about the club. Because of the elevated sound level usually present in display areas, no narration is used, but background music can be run to accompany the slides, if desired.

The Committee has great ambitions for other slide shows, but we are woefully lacking in resource material. *What we need are contributions of slides (with identification of the subject) from our many fine Club photographers!*

Some subjects that we would like to cover in future slide series:

THE FLETCHER WILDLIFE GARDEN:

What better time to capture the "before" pictures. Has anyone slides of the Opening Day? Last year's cleanup and planting? The bird house building? If you are there this year (and subsequent years), take a slide or two for the club records.

WHAT CAN WE SEE IN OUR OWN BACKYARD?

For people who have not thought too much about the natural world around them, we would like to prepare a series on the birds, animals, insects, spiders and mushrooms that are part of our everyday surroundings.

We do not even have a picture of a robin in our files...take it from there!

HABITATS:

A longer term project is to assemble slides that will illustrate the plants and animals to be found in a specific habitat, such as wetlands, farm lands, wooded areas....

And don't forget to involve people in some of the photographs (noting where and when).

COLOUR PRINTS:

Our display panels can always use new enlargements. If you have a particularly good picture that might be an interesting focal point on one of our displays, please consider loaning the negative to the club for reproduction.

Contact the Education & Publicity Committee when you have a contribution:

Ray Knowles (Chair) 1-256-5764 (H), 820-6386 (W)

Betty Campbell (Display coordinator) 523-6632.☐

More Atlases

Ken Young

The success of the *Atlas of the Breeding Birds of Ontario* has led to several similar projects. They provide an opportunity for amateur naturalists to make a significant contribution to our knowledge of species distribution.

If you would like to be involved, consider helping with the *Atlas of the Mammals of Ontario*. You can report observations of mammals made in your back yard, hikes, camping trips or wherever in Ontario -- they are all useful. If you are really ambitious, you can volunteer to systematically cover a 10 kilometre square. Observations collected this year will be published in a Provisional Atlas, with a final one coming out in about four years.

A guide for participants is available, clearly explaining techniques for making and recording observations. More information is available from the writer at:

478 McLeod Street,
Ottawa, Ontario,
K1R 5P8
(613) 231-6061

There are several similar atlas surveys being done, for breeding birds, reptiles and amphibians and others. And I just noticed an advertisement in *Seasons* for the *Ontario Butterfly Atlas*, published by the Toronto Entomologists Association.

So, whatever your interest, there is probably a project which could use your help. Give me a call for more information.☐

Coming Events

arranged by the Excursions & Lectures Committee
For further information,
call the Club number (722-3050).

Times stated for excursions are departure times. Please arrive earlier; leaders start promptly. If you need a ride, don't hesitate to ask the leader. Restricted trips will be open to non-members only after the indicated deadlines.

ALL OUTINGS: *Please bring a lunch on full-day trips and dress according to the weather forecast and the activity. Binoculars and/or spotting scopes are essential on all birding trips. Unless otherwise stated, transportation will be by car pool.*

REGISTERED BUS TRIPS: *Make your reservation for Club bus excursions by sending a cheque or money order (payable to The Ottawa Field-Naturalists' Club) to Ellaine Dickson, 2037 Honeywell Avenue, Ottawa, Ontario K2A 0P7, at least ten days in advance. Include your name, address, telephone number and the name of the outing.*

EVENTS AT THE CANADIAN MUSEUM OF NATURE: *The Club is grateful to the Museum for their cooperation and thanks the Museum for the use of these excellent facilities. Club members must show their membership cards to gain access for Club functions after regular museum hours. There is a charge for parking in the museum lot.*

Sunday
12 July
09:30 a.m.

WETLAND BUTTERFLIES

Leader: Peter Hall (733-0698)

Meet: Neatby Building, Central Experimental Farm, front entrance, one block west of the Irving Place-Maple Lane traffic lights on Carling Ave.

This all-day outing will explore the edges of several wetland areas west of the city. Our quarry will include Sedge Skippers, Hair Streaks, Coppers as well as some of the more elusive wetland butterflies such as the Harvester and the Baltimore. Bring a lunch and a butterfly net if you have one.

Saturday
15 August
07:00 a.m.

SHOREBIRDS

Leader: Bruce Di Labio

Meet: Front entrance, Claxton building, Tunney's Pasture.

This half-day outing will provide novice birdwatchers with an opportunity to observe adult and immature shorebirds in migration.

- Saturday**
22 August
07:30 a.m. **LATE SUMMER BIRDS**
 Leader: Tony Beck
 Meet: Britannia Drive-In Theatre, Carling Avenue.
 Bring a snack and binoculars for this half-day trip.
- Sunday**
23 August
08:30 a.m. **GENERAL INTEREST WALK WITH THE GINNS**
 Meet: Supreme Court Building, Wellington Street.
 Join Jim and Anne for a full-day outing on their property at Cantley, Quebec. The emphasis will be on plants, birds and mushrooms (if conditions are favorable).
- Saturday**
5 September
09:00 a.m. **ASTERS AND GOLDENRODS**
 Leader: Ellaine Dickson
 Meet: Lincoln Fields Galleria, northeast corner of parking lot at Richmond and Assaly Roads. At this time of the year asters and goldenrods are the most conspicuous wildflowers. Join Ellaine and try to learn to identify the many species of both. Bring a snack for this half-day outing.

Tuesday 8 September 8:00 p.m.	OFNC MONTHLY MEETING MEMBERS' SLIDE NIGHT Meet: Auditorium, Canadian Museum of Nature, Metcalfe and McLeod Streets Admission: At least one natural history slide or a 50 cent donation to the Alfred Bog Fund. This popular annual event will provide an excellent opportunity to share your favorite natural history slides and reminiscences of trips, both local and farther afield, with fellow members. Any number of slides up to 15 will be welcome. Those bringing the minimum one slide need not speak if they do not wish to do so. Those bringing more than one or two slides please contact Catherine O'Keefe (745-4441) to prearrange their presentation.
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- Sunday**
13 September
9:00 a.m.
 to
4:00 p.m. **ANNUAL PICNIC: MORRIS ISLAND**
 Meet: Sears, Carlingwood Shopping Centre, Carling and Woodroffe Avenues.
 Cost: \$8:00 (see Registered Bus Trips for Details).
 The Morris Island Conservation Area, on the banks of the Ottawa River west of Fitzroy Harbour, offers a diversity of nature trails for Club members to explore. An additional fee of \$3.00 per person will be charged to defray the cost of apples, cheese and cake. Bring your own lunch and please support the Club by taking the bus rather than your car.

- Sunday**
13 September **TWELFTH ANNUAL SEEDATHON**
Support the OFNC winter bird feeding operations by sponsoring a birder on the annual seedathon. Pledges may be sent to Seedathon, The Ottawa Field-Naturalists' Club, Box 3264, Station C, Ottawa, Ontario K1Y 4J5.
- Wednesday**
30 September
8:00 a.m. **GULLS OF THE CORNWALL POWER DAM**
Leader: Bruce DiLabio
Meet: Elmvale Shopping Centre, northeast corner of the parking lot.
This will be a full-day trip to the American side of the Moses-Saunders Power Dam. Bruce will help you distinguish various species of gulls in different stages of their development. Please bring appropriate identification (driver's licence and birth certificate).
- Sunday**
4 October
8:00 a.m.
to
4:00 p.m. **AUTUMN COLOURS AT THE SHAW WOODS**
Leader: Albert Dugal
Meet: Sears, Carlingwood Shopping Centre, Carling and Woodroffe Avenues.

Cost: \$10.00 (see Registered Bus Trips for Details). This unique and complex woods contains a diversity of mature forest trees (many ranging in age from 150 to 200 years) located near Lake Doré in Renfrew County. Thanks to the joint efforts of the Shaw family of Pembroke, the Canadian Museum of Nature and the Nature Conservancy of Canada this magnificent woodland has been preserved in its natural state. Bring a lunch for this scenic excursion.

<p>Tuesday 13 October 8:00 p.m.</p>	<p>OFNC MONTHLY MEETING ASSESSING NEOTROPICAL BIRD POPULATIONS Speaker: Janette Dean Meet: Auditorium, Canadian Museum of Nature, Metcalfe and McLeod Streets. Janette will provide an overview of a number of different programmes and methods for studying trends in bird populations, particularly those affecting neotropical species. She will assess projects such as MAPS (Monitoring Avian Productivity and Survivorship) and regional bird censuses and present an opinion on the cumulative results of this cooperative research.</p>
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Sunday
18 October
10:00 a.m.

**15th ANNUAL JOINT OUTING WITH THE OTTAWA
RIDEAU TRAIL CLUB**

Meet: Booth and Albert Streets, southwest corner of the parking lot.

This will be a general interest walk on various nature trails in the Mer Bleue conservation area. Bring a lunch for this full-day outing. For further information telephone Bob Bennett (749-7440).

Saturday
24 October
8:00 a.m.

FALL BIRDING ALONG THE OTTAWA RIVER

Leader: Tony Beck

Meet: Britannia Drive-in Theatre, Carling Avenue.

A half-day outing to observe migrating waterfowl at various spots along the river.☐

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The GREEN LINE

Birding has gone digital! Now there is a gizmo you can get for Sony Discman CD players that lets you take certain bird song recordings with you into the field. If you fill out the order form in Peterson's Guide for Eastern Birds on compact disk, you get a bunch of bar-coded stickers - one for each bird species - that you stick on the page of your field guide under the picture of that bird.

Of course you can listen to the CD in the usual way, starting at the beginning and playing it to the end. What this gizmo lets you do is run the wand (the thing that looks like a pen that reads the bar codes like those on your groceries) over the sticker to hear the recording of that bird from wherever it happens to be on the CD.

For some time now, fine recordings of birds and other animals have been made by Monty Brigham and others using digital recording technology combined with years of

research and birding experience. Now they are available in CD and the sound quality is fantastic. CDs and videotapes you can buy at the Nature Canada Bookstore will let you listen to a dawn chorus at a remote trout lake or watch Tanagers build a nest. You don't even have to leave your armchair to study the Prothonotary Warbler.

Regrettably, our world is so filled with noise that it's hard to find a place sufficiently quiet for the listener to appreciate just how good these recordings are. A futile quest for absolute silence makes one appreciate just how much of North America is now occupied by people. If you're not near a house, you're probably near a road. One might ask Monty how many of his recordings have been ruined by passing airplanes, motor boats, logging trucks or the ubiquitous automobile...

The birds and animals that are still with us are those that are most tolerant of human disturbance. The top predators were especially sensitive to the changes European settlement made to

their habitats and to the abundance and movement patterns of their prey. It is believed that the last eastern cougar in Ontario was shot in Creemore, in the central part of the province, in the 1880's. Apart from more than 100 fleeting sightings reported since the 1950's, there is no real evidence confirming even one Eastern Cougar in Ontario for over a century. (If you happen to have proof, please show it to somebody!) It is our loss that cougars vanished forever before we could take digital recordings or videotapes of them. A few pelts are apparently available for study. Wolves will be next to go...

We can consider ourselves lucky to have such wonderful mementos of our songbirds. Western technology, which helped us to dominate the world, is now being used to record the birds for all time in our great libraries.

If we don't slow down the machinery of civilization, these archival records may soon be all we have left.

What's Happening in Leitrim Wetland?

by Michael Murphy

In June, the City of Gloucester approved a Concept Plan for Leitrim. The Concept Plan is a sort of approval in principle, with details to be dealt with in a future Plan of Subdivision. Although it doesn't have real status under the Planning Act - except that it represents an opinion of Council - it gives a developer some assurance that money spent preparing a detailed plan will someday return. It also means the developer in this case can now afford to transfer ownership of some of the wetland to the South Nation Conservation Authority, who want a multi-stakeholder group - including the OFNC - to manage the wetland. Such a group would take the responsibility to decide such things as whether interpretive facilities are appropriate or what form they might take.

But long before any development will reach this stage, important and contentious issues must be solved. For

details, see Albert Dugal's article in this issue of Trail and Landscape. Tartan Homes and their engineering consultants have agreed to do additional studies to settle the question of whether the proposed development would ultimately destroy the wetland area instead of protecting it. The Leitrim Naturalists' Group, composed of groups and individuals including the OFNC, must be satisfied that any studies or new analyses will establish the information necessary to make wise decisions about the wetland's future. Prevention of any and all disruption due to construction or habitation must be guaranteed.

The Leitrim Naturalists' Group is now drafting a position statement which will first be ratified by the group and then sent to Tartan Homes and the Minister of the Environment, Ruth Grier. This statement will define the areas both of agreement and disagreement. The group will also comment on whether the Minister should designate the project as subject to the Environmental Assessment Act.

THE SHORT STORY...

Britannia / Mud Lake

At a public meeting to be held at 7:00 pm on April 30th, the City of Ottawa and their consultants showed they have been listening to the strong public protest to plans to dump untreated stormwater into Mud Lake. The City is still pursuing an engineering solution to the annual basement flooding problems in Belltown and Britannia village. The Mud Lake alternative has been at least temporarily shelved but this drives the cost of stormwater infrastructure from \$8 million to more than \$13.5 million. The new preferred alternative would be underground stormwater storage tanks which would act as settlement ponds, then the treated water would be outlet into Pinecrest Creek just east of the Britannia Filtration Plant. However, Councillor Mark Maloney and other Ottawa City Councillors have said they may try to get the Mud Lake option reconsidered, hoping to save some of that five million dollar cost difference.

Carson Woods in Limbo

The Central Mortgage and Housing Corporation (CMHC) have been trying for more than four years to rezone Carson Woods as residential land and sell it off. They are

stalled by a sudden decision last year by Ottawa City Council to designate three areas in the woodlot as Environmentally Sensitive in the new Ottawa Official Plan. Unfortunately, the City's Official Plan won't be approved by Regional Council until at least November 1992.

Gatineau Park Gateway Closed - to Developers

The public has spoken and the NCC has heard the word: leave Gatineau Park - even the southern stretch of it surrounded by Hull - just the way it is! With considerable relief, naturalists and other park visitors have learned that their participation in the public process has paid off. In a decision released in mid-June, the NCC and their consultants returned a design which resolves a few technical issues but basically leaves the Gateway Sector of the park the way we now enjoy it.

Welcome to the Ontario Environment Network!

The Ottawa Field-Naturalists' Club has recently joined this active network of naturalist, environmental and community groups which is trying to reform Ontario environmental policies. The OEN has established effective ongoing consultative relationships with provincial Ministries, agencies and commissions. The OEN was the original sponsor of the Web computer network, which is linked to other environmental networks worldwide.

Aylmer Residents Still Fighting To Save Forest

by Jim Reil

Residents of Champlain Park in Aylmer don't give up easily. For more than a month, they have been urging politicians to reroute the McConnell-Laramée highway extension around one of the oldest white pine forests in the Ottawa valley.

For years, Quebec's Ministry of Transport assured them the extension would bypass the forest, located at the northern edge of Champlain Park. But in late May, surveyors began staking cut lines through the forest.

Then last Tuesday, while Canada was earning headlines for environmental stewardship in Rio, the residents of Aylmer once again woke to the whine of chainsaws. Within a few hours, workers had cut a 70-metre swathe through the heart of the forest. According to Ottawa environmental consultant Daniel Brunton, hired by CBC Radio to assess the cut on Friday afternoon, the workers had evidently been given orders to cut the trees as quickly as possible. The mess they created will be expensive to clean up, Brunton says.

The forest has been cut, so the fight is over, right? Wrong. The residents are now even more determined to

save the forest. They have scheduled meetings with government officials and politicians in all levels of government to discuss replanting the cut line.

They are calling for a public inquiry into the Quebec Ministry of Transport's wilful destruction of over half of the forest. They are also demanding an inquiry into the National Capital Commission's role in the destruction of the forest. In particular its failure to conduct an environmental assessment of its own, and its superficial monitoring of the assessment done in 1988 by the Quebec Ministry of Transport. This report did not even mention the pine grove—far and away the most significant natural feature in the study area.

Support for the residents' position is growing. NDP environment critic Jim Fulton has demanded that the federal government conduct an inquiry. And on Sunday, June 21, more than 60 residents attended a ceremony conducted by Wilf Peltier, an Odawa elder, for the spirits of the trees that were killed. Peltier said the prayers were also for the people who ordered the destruction of the forest.

If you'd like to help restore the Champlain Park pine forest, please call Martin Pagnan at 777-1767 or Louise Klinck at 778-2330.

**GREEN LINE NEWS EDITOR:
Michael Murphy (613) 727-1739**